

Fermentation of cellulose pyrolysis oil by a *Clostridial* bacterium

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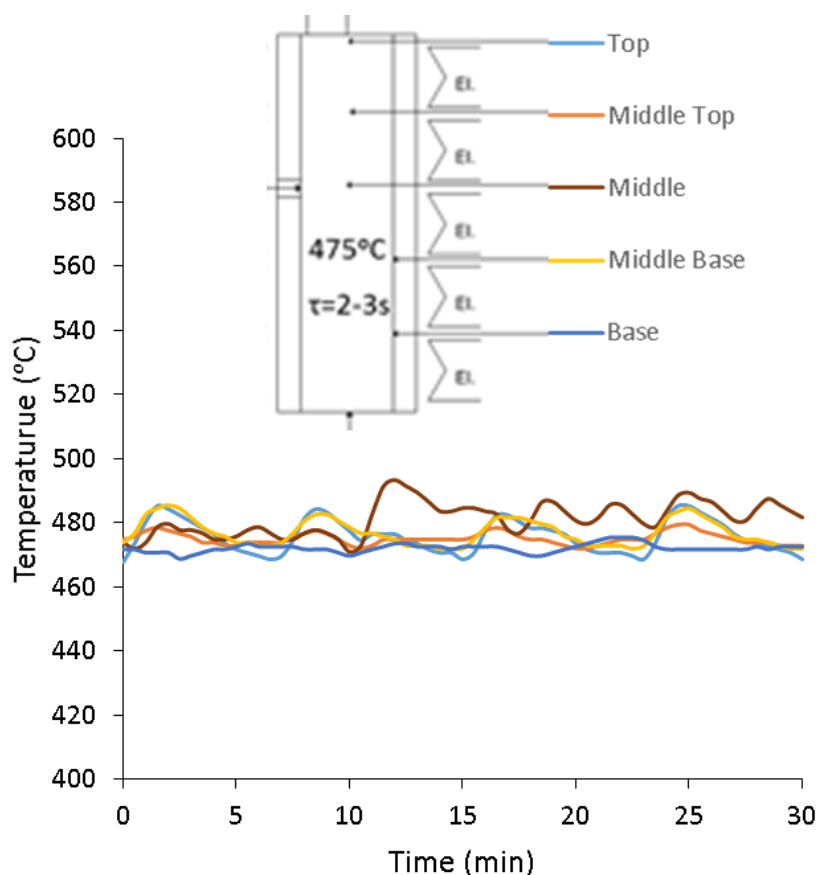
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Electronic supplementary information

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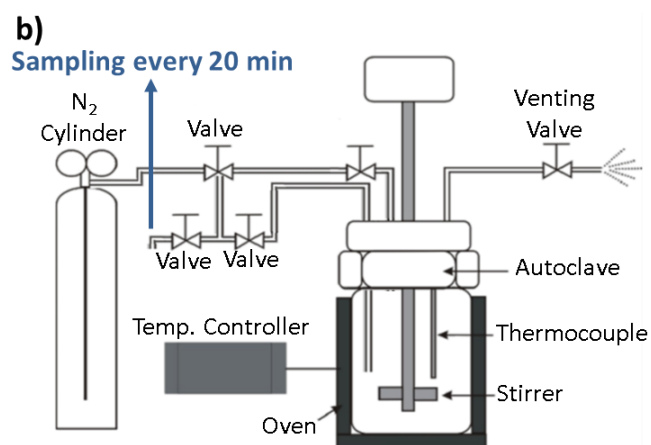
Figure S1. Temperature in different points along the fluidized bed reactor during the fast pyrolysis of cellulose

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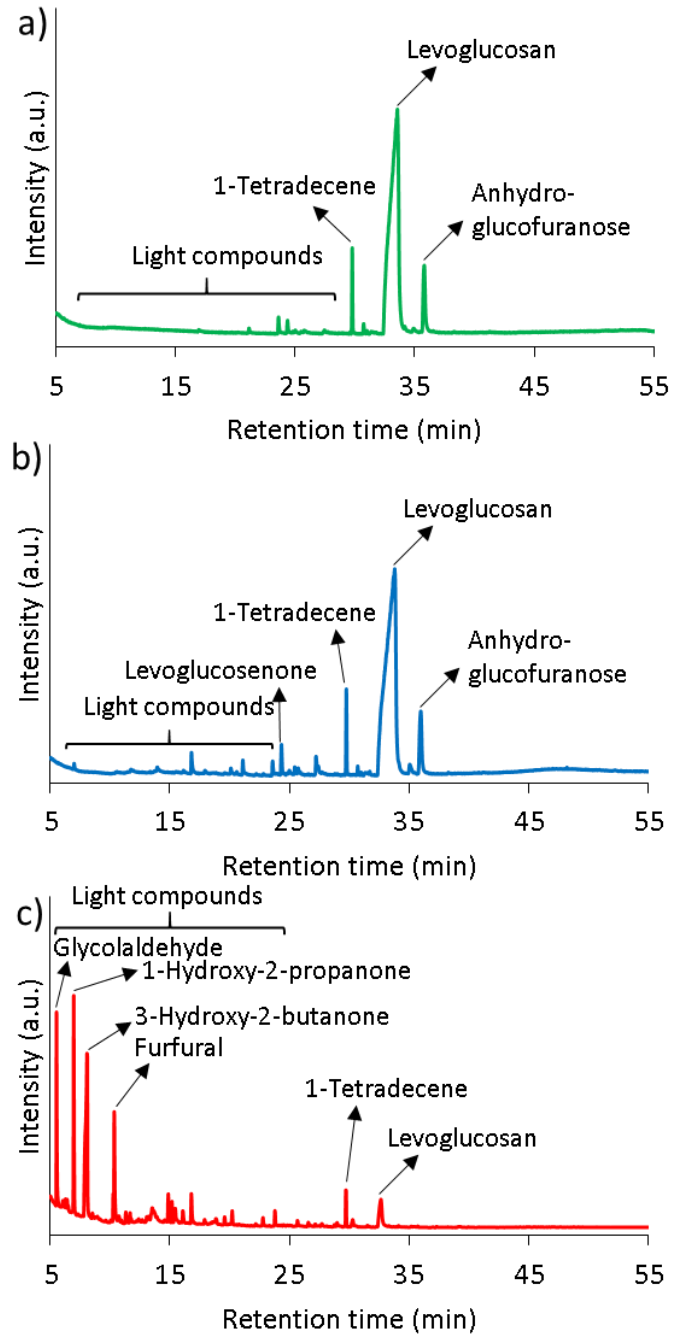


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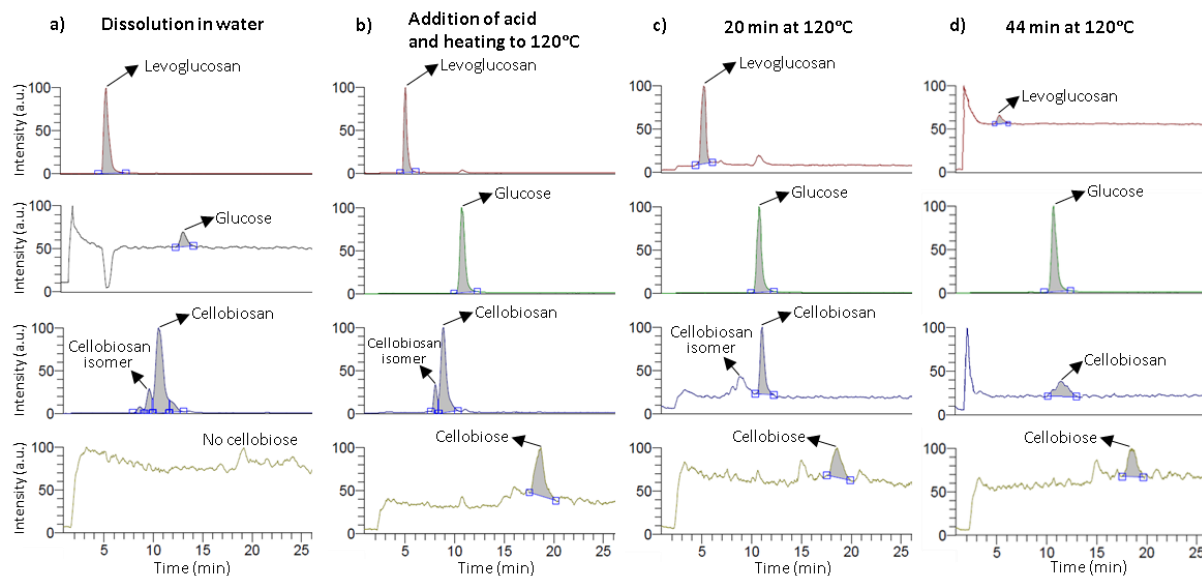
Figure S2. Autoclave reactor a) picture and b) scheme.



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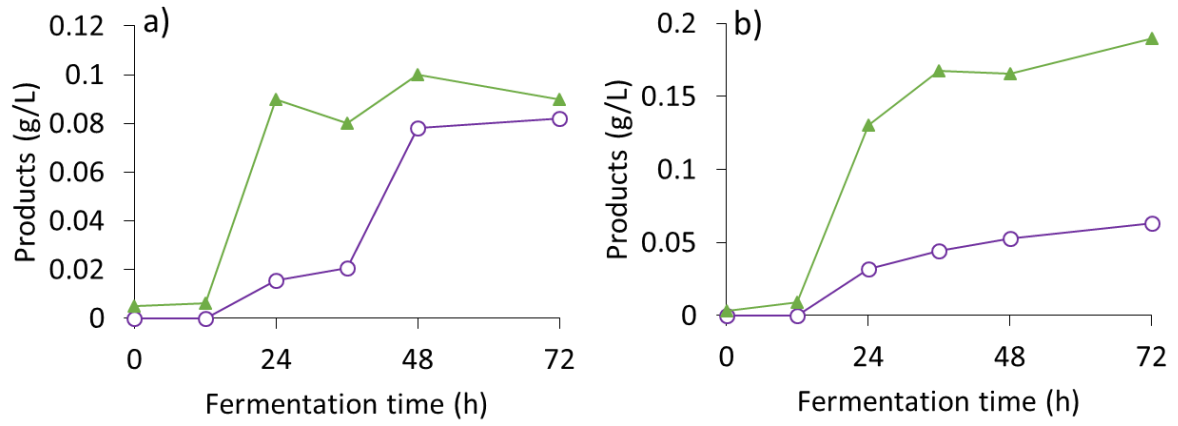
Figure S3. GC-MS total ion current chromatogram for different bio-oil fractions recovered on a) condenser 1 (fraction named C1), b) condenser 2 (C2) and c) condenser 3 (C3).



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36 **Figure S4.** Levoglucosan and cellobiosan analysis by HILIC-LTQ-Orbitrap during the hydrolysis of real
 38 bio-oil from cellulose pyrolysis (C1 fraction) under mild acidic media. SIM mode of levoglucosan (m/z
 197 and 199), glucose (m/z 215 and 217), cellobiosan (and isomer) (m/z 359 and 361) and cellobiose (m/z
 377 and 379) adducts with chlorine 35 and chlorine 37 respectively.

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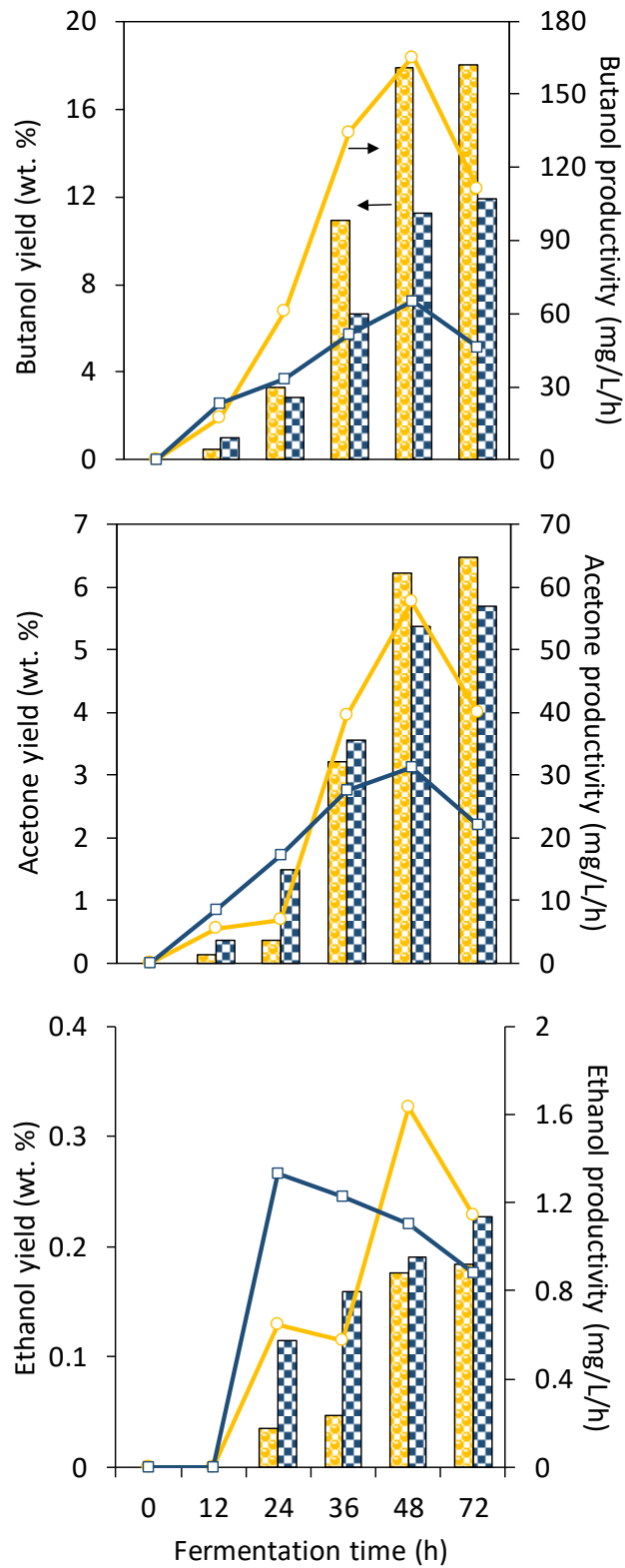


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Figure S5. Ethanol and lactic acid formation during the fermentation of cellulosic bio-oil obtained after hydrolysis from a) first condenser (C1) and b) second condenser (C2) by *C. acetobutylicum*. Products: ethanol (green, Δ) and lactic acid (purple, \circ).



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50 **Figure S6.** Yields and productivities of butanol, acetone and ethanol produced by *C. acetobutylicum* grown
 on pyrolytic oil. The yields are presented as histograms and the productivities as curves as follow:

52 condenser 1, (C1, yellow circle, ○) and condenser 2 (C2, blue square, □).